

1.6 - Solving and Graphing Linear Inequalities

Linear Inequalities: equations of the form $ax \pm b > c$,
 $ax \pm b \geq c$, $ax \pm b < c$, or $ax \pm b \leq c$

*Note: When solving linear inequalities, switch the inequality sign when:

1. multiplying both sides by the same negative number
2. dividing both sides by the same negative number

**Note: When graphing linear inequalities, use a(n):

1. open dot for $<$ or $>$
2. closed dot for \leq or \geq

Ex 1: Solve and Graph $4y - 7 < 17$

$$\begin{array}{r|l} +7 & +7 \\ \hline 4y < 24 \\ \frac{4y}{4} & \frac{24}{4} \end{array}$$

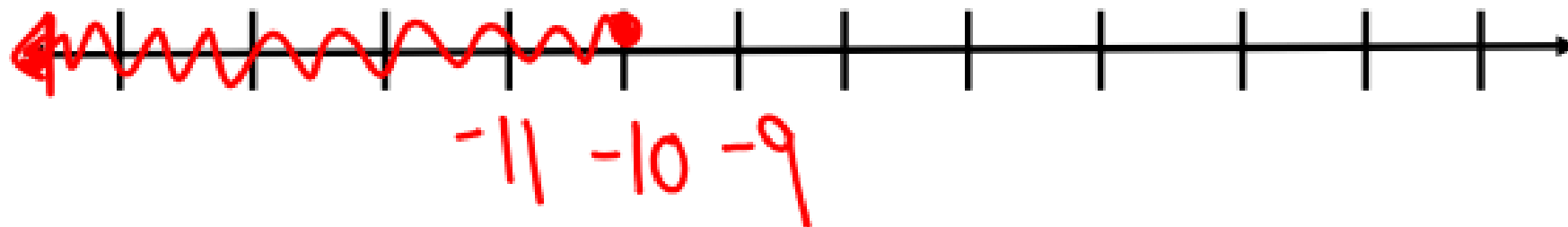
$y < 6$



Ex 2: Solve and Graph $3x + 2 \leq 2x - 8$

$$\begin{array}{r|l} -2x & -2x \\ \hline x+2 & -8 \\ -2 & -2 \\ \hline x & -10 \end{array}$$

$x \leq -10$

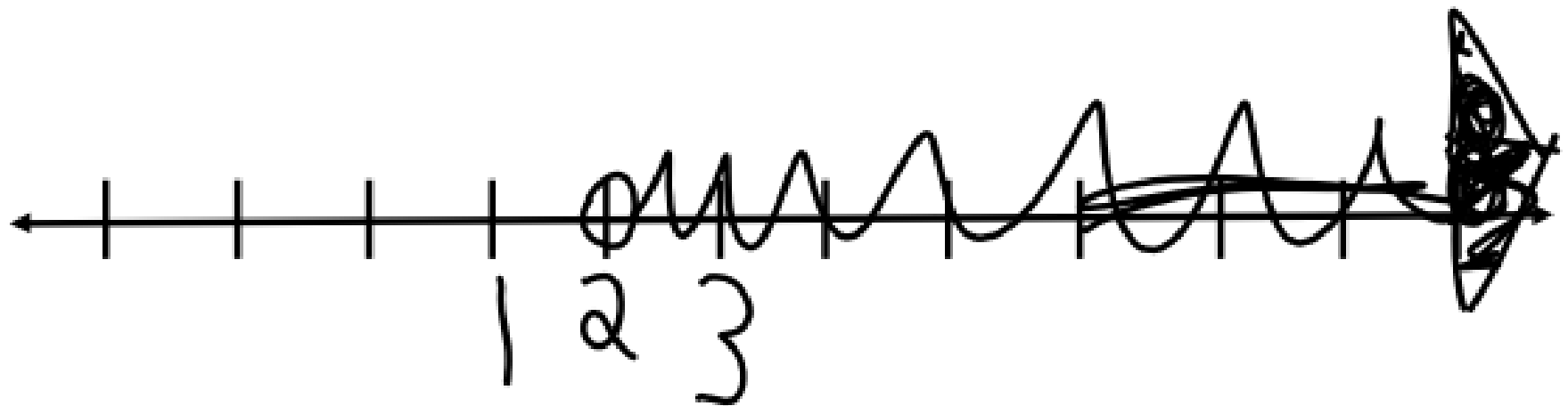


Ex 3: Solve and Graph $3(2x + 4) > 24$

$$6x + 12 > 24$$
$$-12 \quad -12$$

$$\frac{6x}{6} > \frac{12}{6}$$

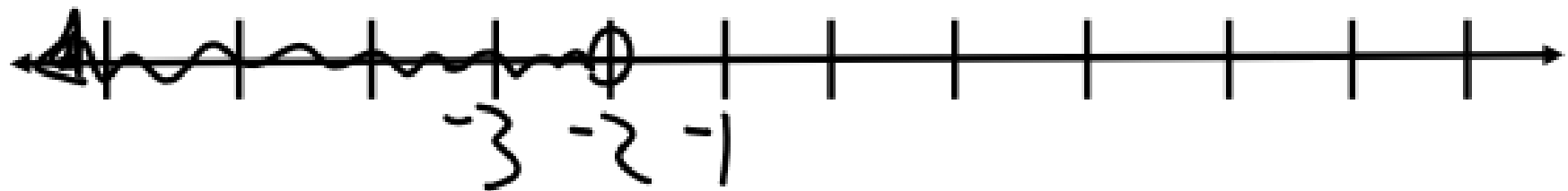
$$x > 2$$



Ex 4: Solve and Graph $-\frac{1}{2}y + \cancel{3} > 4$
 $\quad \quad \quad -3 \quad -3$

$$\cancel{-\frac{1}{2}y} > \cancel{1} \cdot \frac{-2}{1}$$

$$y < -2$$



Homework: p.45 #25-36 all